

07.1-109 Checking injection timing (begin of delivery) (high pressure method)

Job no. of flat rates or standard texts and flat rates data 07-8234.

Test values

Injection timing (begin of delivery) before TDC in compression stroke	+24° +1°
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Attention!

Push regulating lever of injection pump to full load while measuring and pull vacuum hose from vacuum control unit.

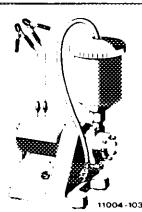
Tightening torque

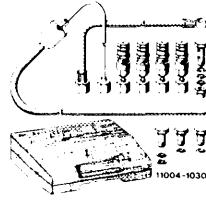
Nm

Injection lines	25
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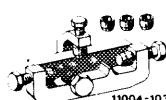
Special tools

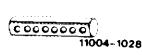
Box end wrench element, open 17 mm, 1/2" square for injection lines	 11004-6359	005 589 68 03 00
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Pump unit, complete	 11004-10303	617 589 00 71 00
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Connecting members with carrying case	 11004-10301	617 589 00 91 00
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Quick lock	 11004-10302	617 589 02 91 00
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Closing bracket	 11004-10300	617 589 03 91 00
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Drive square 1/2", 80 mm long for rotating engine	 11004-10282	617 589 00 16 00
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Conventional tool

Torque wrench 1/2" square, 15–65 Nm

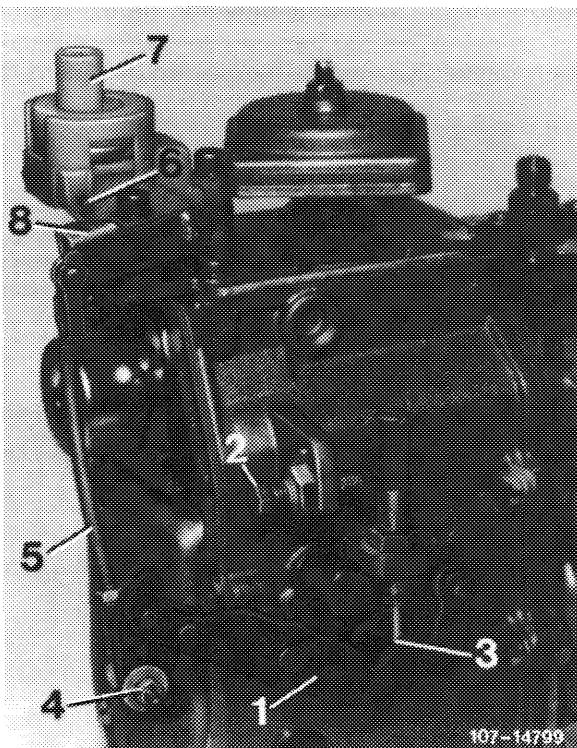
Checking

1 Clean injection lines in range of coupling nuts on injection pump as well as on fuel filter.

2 Set control rod of injection pump to **full load**.
For this purpose, pull control lever (1) to full load stop (2).

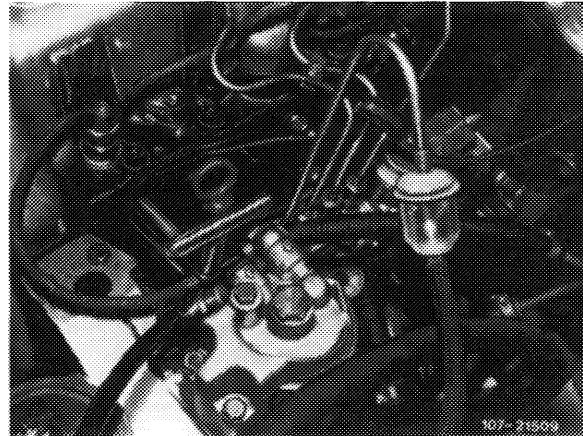
For this purpose, pull vacuum hose from vacuum control unit and lock regulating lever of injection pump to **full load**.

1 Regulating lever
2 Full throttle stop



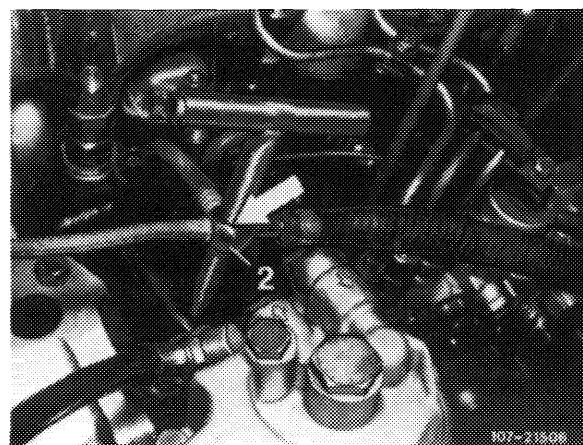
3 Unscrew injection line for cylinder 1.

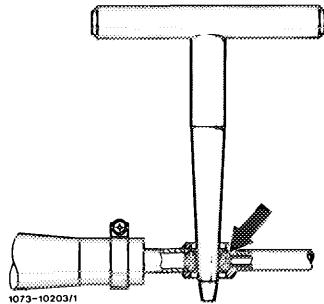
On injection pump, screw on test line with sight glass and install return line to fuel tank of pump unit.



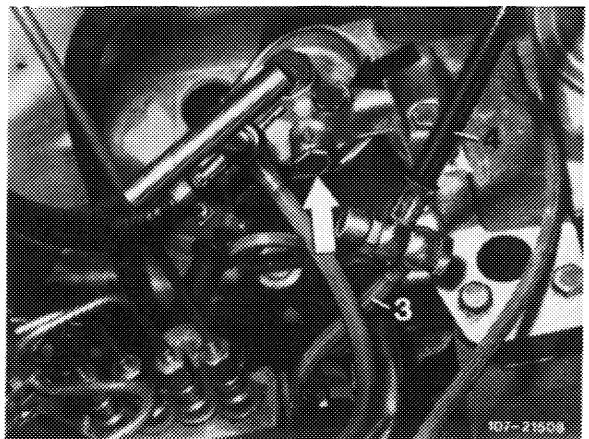
4 Close fuel return line from injection pump to fuel filter.

Insert O-ring into ring member (2) of return line and firmly push in quick lock.





- 5 Connect supply line (3) for injection pump with connecting line (4) of pump unit by means of a double hollow screw. Close connecting holes on fuel filter with closing plugs (arrows).



- 6 Clamp connecting cable of pump unit to vehicle battery (red terminal positive, black terminal negative).

- 7 Rotate crankshaft in direction of rotation of engine up to approx. 35° before TDC in compression stroke of first cylinder. Engage pump unit.

Attention!

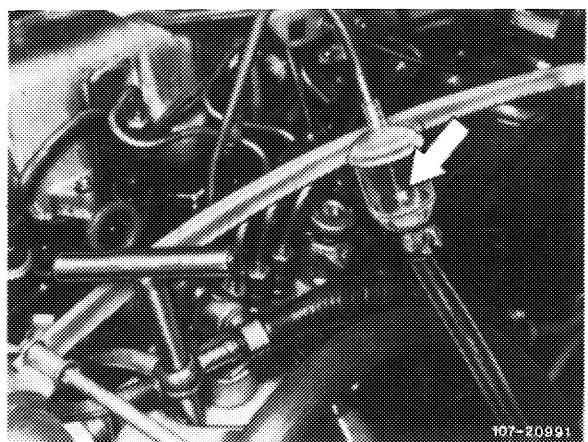
Engage pump unit only up to measuring. In the event of a leaking injection nozzle, fuel may enter combustion chamber.

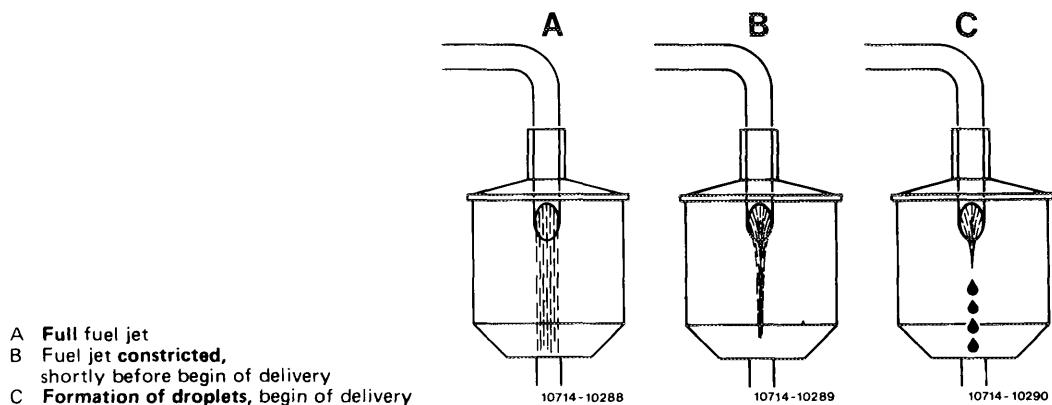
- 8 Slowly rotate crankshaft in direction of rotation of engine, while watching fuel jet in sight glass.

Delivery begins when the fuel jet changes over into a formation of droplets.

In this position, read begin of delivery on graduated scale on balancing disk.

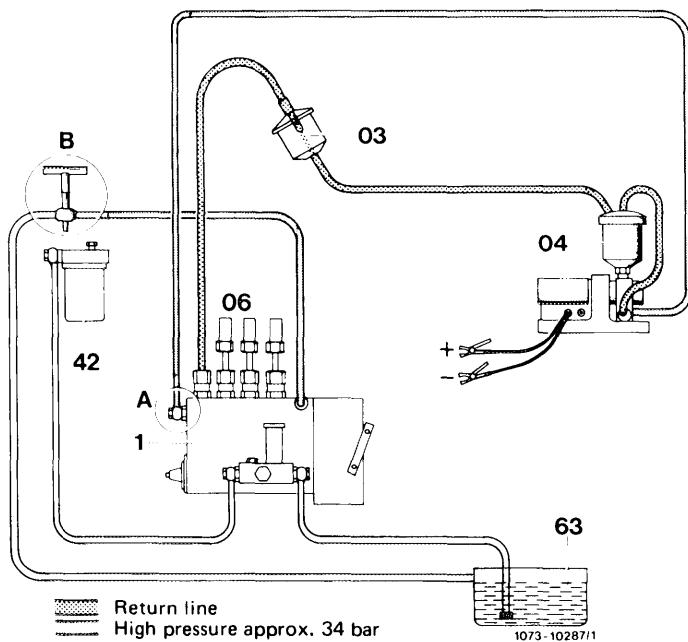
Nominal value: $24^\circ + 1^\circ$





9 Disconnect pump unit. Assemble injection system.

10 Ventilate injection system (07.1-140). Run engine and check all connections for leaks.



Connection diagram high pressure overflow method

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|------------------|-------------|--|
| 1 Injection pump | 4 Pump unit | A Hollow screw, fuel feed from pump unit |
| 2 Fuel filter | 5 Fuel tank | B Fuel return line with quick lock or closing bracket closed |
| 3 Sight glass | | |